

1 LISA L. OBERG (BAR NO. 120139)
loberg@mckennalong.com
2 FELICIA Y. FENG (BAR NO. 184346)
ffeng@mckennalong.com
3 MCKENNA LONG & ALDRIDGE LLP
101 California Street
4 41st Floor
San Francisco, CA 94111
5 Telephone: (415) 267-4000
Facsimile: (415) 267-4198
6 Attorneys for Defendant
METALCLAD INSULATION CORPORATION

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NORTHERN DISTRICT OF CALIFORNIA
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8 UNITED STATES DISTRICT COURT
9 NORTHERN DISTRICT OF CALIFORNIA

JCS

10 FRANK DELAHAYE,

CASE No.

11 Plaintiff,

**DECLARATION OF DAN H. HEFLIN, JR.
P.E. IN SUPPORT OF METALCLAD
INSULATION CORPORATION'S NOTICE
OF REMOVAL PURSUANT TO 28 U.S.C.
1442(A)(1) (FEDERAL OFFICER)**

12 v.

13 ASBESTOS DEFENDANTS, As Reflected
on Exhibits B, B-1, C, H, I, J, N and DOES
14 1-8500, et al.,

15 Defendants.
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1 I, Dan H. Heflin, Jr., P.E., declare:

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3 1. I am over the age of eighteen and am not a party to this action. I have personal
4 knowledge of the matters set forth in this declaration. If called as a witness, I could and would
5 competently testify to the following.

6 2. I graduated from Virginia Polytechnic Institute with a Bachelor of Science Degree
7 in industrial engineering in 1956. I am a registered Professional Engineer in Virginia since 1968.

8 3. I am a retired Director of Engineering at Newport News Shipbuilding and Drydock
9 Co. ("NNSD")—the largest privately-owned shipbuilding company in the world. I worked for
10 NNSD from 1956 through 1992. During my 36-year career at NNSD, I worked in various
11 positions within the Shipbuilding Segment, including Designer, Design Section Manager,
12 Manager of Submarine Design, and Director of Engineering Services.

- 13 • As a Designer, I reviewed and processed boiler drawings for numerous
14 commercial and naval vessels. That work involved reviewing and
15 recommending changes to vendor-furnished drawings to assure compliance
16 with applicable Navy and commercial specifications and standards. I also
17 worked closely with the Navy's Supervisor of Shipbuilding and/or
18 NAVSHIPS Command regarding approvals for issue of drawings and
19 associated technical manuals. I also designed numerous components (and
20 supporting systems) for the *USS America* (CVA-66) as a Designer.
- 21 • As a Design Section Manager, I prepared SSN-688 Class contract drawings
22 and technical specifications for the Naval Seas System Command. That
23 work involved technical oversight of all aspects of the non-nuclear portions
24 of an entirely new class of nuclear attack submarines. Creating the
25 specifications for Naval Seas System Command involved intensive design
26 studies and an understanding of the Navy's goals and objectives for this
27 class of vessels, as well as constant communications with Naval Seas
28 System Command officials.

- In approximately 1971, the U.S. Navy designated NNSD the “lead yard design agent” and “planning yard” for the life cycle support for all SSN-688- Class submarines. As Design Section Manager of the Submarine Design Office, and later as Manager of Submarine Design, I worked closely with the U.S. Navy Supervisor of Shipbuilding and Naval Sea Systems Command to resolve design issues and construction and maintenance issues associated with the lead ship and all follow-on 688-Class ships. I also worked with then-Commander Wesley C. Hewitt to resolve design, construction, maintenance, and overhaul matters concerning 688-CLASS ships at various naval shipyards.
- As a Director of Engineering Services, I was responsible for design and engineering activities for nuclear and non-nuclear vessels.

4. After retiring from NNSD in 1992, I formed Heflin & Williams, an engineering consulting firm, which is located at 208 East Plume Street, Norfolk, Virginia 23510. Heflin & Williams provides engineering-related services to private industry and to government agencies. I have performed cost-engineering and production engineering analyses for various government subcontractors. My work has also included analysis of governmental specifications and material and facility requirements for conversion overhauls by commercial shipyards. I have also served as a consultant to Navy contractors regarding their qualification and compliance with government specifications.

5. I submit this declaration in support of Defendant Metalclad Insulation Corporation’s Notice of Removal to Federal Court to present my opinions relative to the procurement of Unibestos Thermal insulation pursuant to the 1968 Award Contract from Mare Island Naval Shipyard to Metalclad Insulation Corporation for a shipment of Pittsburgh Corning Unibestos Insulation.

6. It is my understanding, based upon review of Plaintiff’s Complaint that Plaintiff claims to have suffered exposure to Metalclad supplied Unibestos thermal insulation while working as a Marine Machinist Apprentice, a Journeyman Machinist, a Nuclear Inspector, and a

1 Tester on board the *USS Guitarro*, the *USS Drum*, the *USS Hawkbill*, and the *USS Pintado* at
 2 Mare Island Naval Shipyard from 1965 to 1991.

3 7. It is also my understanding, based upon my review of the Award Contract
 4 ("Purchase Order"), the Material Cards for Unibestos shipped to Mare Island Naval Shipyard, the
 5 correspondence from Pittsburgh Corning Corporation to government personnel at Mare Island
 6 Naval Shipyard regarding the Unibestos shipment, and Wilfred Newton's trial testimony, that in
 7 1968 Metalclad Insulation Corporation brokered a shipment of Pittsburgh Corning Unibestos
 8 Insulation for use in the construction of four nuclear submarines being constructed at Mare Island
 9 Naval Shipyard: the *USS Guitarro*, the *USS Drum*, the *USS Hawkbill*, and the *USS Pintado*.

10 8. Attached hereto are true and correct copies of the following Exhibits, which I
 11 reviewed in preparation of this Declaration and which are central to the allegations in this matter:

- 12 • Exhibit 1: Award/Contract N000445-69-C-0137, confirming Award Notice
 13 dated August 3, 1968.
- 14 • Exhibit 2: MIL-I-2781 and its associated QPL, and its predecessor Navy
 15 Specification P-8 and its associated QPLs and Approved Materials Lists
 16 which preceded the implementation of QPLs.
- 17 • Exhibit 3: Correspondence between Pittsburgh Corning and Mare Island
 18 Naval Shipyard regarding the shipment of Unibestos pursuant to the
 19 Metalclad Purchase Order.
- 20 • Exhibit 4: Mare Island Stock Cards associated with receipt and issue of the
 21 subject Unibestos.
- 22 • Exhibit 5: MIL-I-24244.
- 23 • Exhibit 6: Defense Standardization Program Office publication, SD-20.
 24 "The DOD Qualification Program", January 2002.
- 25 • Exhibit 7: Statement of Rear Admiral. Paul E. Sullivan, U.S. Navy, Deputy
 26 Commander for Ship Design, Integration and Engineering, Before the
 27 House Science Committee On The SubSafe Program, 29 October, 2003.

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- Exhibit 8: U.S. Naval Engineering Experiment Station Report No. 7737, dated July 31, 1936, Preliminary Report on Unibestos Sectional Pipe Covering.
- Exhibit 9: U.S. Naval Engineering Experiment Station Report No. 8321, dated December 16, 1937, Insulation, Pipe Covering, and Block Unibestos.
- Exhibit 10: Scanned copies of two local Newspaper articles regarding a recent and on-going revelation of welding inspection fraud by a company (Northrup Grumman) inspector, and the Navy's reactions thereto.

9. In order to establish the perspective from which to review the circumstances of this issue, one must have a full understanding of the Navy's material and process requirements and the depth to which its concern for ship's safety and reliability dictate those requirements. Following is a brief summary of the essence of those concerns and the policies adopted to ensure satisfactory compliance by all parties involved.

- A. Through my education, training and work experience, I have developed expertise regarding United States Navy ship and submarine design, development, maintenance, construction and repair, including the mandatory compliance with military specifications and the level of control and supervision exercised by the United States Navy over all equipment installed aboard a United States Navy vessel.
- B. The Navy operates under a regimented, formal, disciplined system of design and material control. Because of the criticality and inherent danger of many systems aboard ship, the Navy has established a rigid system to assure that only proper materials are available for and used in the construction and repair activities at any level. The extent of the Navy's concern is dramatically illustrated by the welding materials issue reported in Exhibit 10.
- C. With the advent of Nuclear Power and its introduction into naval ships, the Navy established separate command control of all aspects of nuclear power

1 applications. That command and control structure is NavSea Code 08
2 (formerly Nuclear Type Desk in BuShips and NavShips Code 08), and has
3 absolute control over all matters involved in any way with nuclear power.
4 In the exercise of such control, entirely new and independent requirements
5 were established and put into effect to provide the level of assurance
6 deemed necessary to NavSea Code 08. Specifically, the navy established
7 new and more stringent requirements for a host of material applications,
8 among which was Mil-I-24244, Exhibit 5.

9 D. The systems of assurance and control were further strengthened by the
10 Navy's response to the loss of *USS Thresher* in 1963. The program created
11 to assure significantly upgraded controls was, and remains, "The
12 Submarine Safety Certification Program", popularly known as "SubSafe",
13 and is described in significant detail in RADM Paul E. Sullivan's
14 Statement to the (US Congress) House Science Committee on 28 October,
15 2003, Exhibit 7. That program provides additional emphasis and
16 mandatory procedures to assure the adequacy of every item that in any way
17 affects the submarine pressure hull watertight boundary and/or the ability
18 of the submerged ship to recover from flooding. The propulsion system is
19 a critical component of the recovery capability, and the associated piping is
20 a critical element of the propulsion system. Thus, the insulation applied to
21 that piping must be free of corrosion. The MIL-I-24244 requirements for
22 additional requirements for assurance of freedom from corrosive materials
23 is an element of "SubSafe". That certification is the key requirement of the
24 specification.

25 E. The Navy's design systems are clearly established and promulgated by a
26 series of specifications, directives, and instructions. Moreover, the Navy
27 maintains an all-encompassing inspection program to assure that the
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1 requirements of the specifications, directives, and instructions are complied
2 with and certifications of same are recorded.

3 F. The Navy, through Naval Sea Systems Command or the Bureau of Ships,
4 exclusively prepared, drafted and issued specifications for thermal
5 insulation and approved all such thermal insulation produced for the Navy.
6 Before a manufacturer like Pittsburgh Corning received authorization to
7 manufacture selected equipment or materials such as thermal insulation for
8 use by the Navy, all of the design documentation first had to be approved
9 by the Navy. These inspections and approvals were the responsibility of
10 the Bureau of Engineering and its successor organizations, the Bureau of
11 Ships, Naval Ship Systems Command and Naval Sea Systems Command.
12 The Navy frequently required changes in design, materials and
13 documentation before approving the design and authorizing the
14 manufacture of the equipment and materials for use aboard its vessels.

15 G. Military specifications for thermal insulation and other equipment used
16 aboard Navy vessels were drafted, approved and maintained by the Navy,
17 specifically the Naval Sea Systems Command. The Naval Sea Systems
18 Command controlled the military specifications in large part because it had
19 superior knowledge of the demands and requirements of combat-ready
20 vessels. Military specifications address all aspects of shipboard equipment
21 and materials requirements, including whether these materials contained
22 asbestos and reflect the state of the art and the special needs of the Navy's
23 combat vessels.

24 H. The Navy had unique specifications for thermal insulation used aboard
25 nuclear powered submarines. These specifications were communicated to
26 outside vendors, including Pittsburgh Corning, by the Navy in Requests for
27 Proposals for certain equipment and materials.

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1 I. The Navy also has a complex supply system for the procurement of
2 materials used aboard ships. Materials intended for nuclear applications
3 are procured beyond the Navy's standard material ordering practices and
4 under the purview of the Commands responsible for nuclear power; in the
5 case of submarines, NavSea Code 08. Materials intended for nuclear
6 applications are segregated throughout the complete supply system, and
7 expressly restricted to nuclear use. Evidence of that restriction in practice
8 is documented in the material stock cards, Exhibit 4, wherein the restriction
9 was lifted for surplus materials after completion of the intended ships, and
10 the materials released for non-nuclear use. Part of the Navy's system
11 includes the QPL, which are comprehensive lists of selected Navy-
12 approved products (e.g., insulation, electrical switches, cements, lubricants,
13 valves, etc.) citing Navy-approved manufacturers/suppliers, specific to that
14 sole commodity. Through the QPL program, and the predecessor Navy
15 Approved Materials List, vendors of materials with repeated or frequent
16 use by the military can pre-qualify their product(s) through a Navy testing
17 program which penults future acquisitions of that identical product to be
18 procured without further testing. Such pre-qualified vendors are recorded
19 on a QPL generated for certain Military Specifications. A QPL certifies
20 listed vendor's proven compliance with the base specification for a
21 product. Exhibit 7 explains the origin and application of QPLs.

22 J. Once a QPL is established, the Navy can select a pre-qualified vendor's
23 product that fits the Navy's needs for a particular application, as expressed
24 in the associated specification. A manufacturer's/supplier's product that
25 appears on a QPL falls within a specific range of performance parameters
26 required by the Navy and articulated in the associated specification.

27 K. Once a product listed on the QPL becomes subject to a special certification,
28 the QPL is no longer applicable for that specific procurement, i.e., the

1 product as identified on the QPL, which is the baseline specification only,
2 is not suitable for use on the particular vessel or class of vessels whose
3 precise design interest the Navy is contemplating because that particular
4 vessel or class of vessels requires a stricter requirement not guaranteed by
5 the products listed in the QPL.

- 6 L. Where the Navy requires that production of a product or material such as
7 the subject lot of Pittsburgh Corning Unibestos meet standards beyond
8 those required by the specification and its associated QPL, the Navy may
9 invoke additional oversight of the production of the product using on-site
10 government inspectors. These inspectors are called Defense Contractor
11 Administration Service representatives ("DCAS"), and are employees of
12 the U.S. Navy. It is DCAS's responsibility to ensure that vendors such as
13 Pittsburgh Corning follow the total required contract specifications during
14 production. DCAS is present during production and monitors the vendor's
15 testing of the product to ensure that the vendor complies with each and
16 every requirement specified in the Navy's testing procedures. DCAS also
17 independently reviews, inspects and tests the product prior to shipment.
18 DCAS serves as the on-site "eyes and the ears" of the government and has
19 the final say as to whether the production complies with the Navy's
20 specification and whether it will ultimately be cleared to be sent to its
21 contracted destination. The documentation (Exhibits 1, 3 & 4), reflecting
22 the production, testing and sale of the Pittsburgh Coming Unibestos that
23 was brokered to Mare Island Naval Shipyard shows that a DCAS was
24 present overseeing and approving the manufacture of the production lot.
- 25 M. Navy specifications also addressed the nature and type of any marking
26 and/or labeling placed on all equipment and materials supplied by outside
27 contractors, including thermal insulation. The Navy utilized its own
28 warning and training protocols regarding the use of materials and processes

1 it considered to be a hazard or threat to combat effectiveness. Any attempt
 2 by a vendor such as Pittsburgh Corning or a supplier such as Metalclad to
 3 attach a warning or cautionary statement not specified and approved by the
 4 Navy would likely have been unwelcome. The Navy had established its
 5 own training and adopted its own precautionary measures regarding the use
 6 of asbestos and asbestos containing products.

7 N. The Navy also had specifications addressing the form and content of
 8 written materials to be delivered with, products supplied to the Navy, and
 9 these specifications contained explicit direction regarding the type of
 10 information to be included. This included any and all cautions and
 11 warnings. It is highly unlikely that Pittsburgh Corning or Metalclad would
 12 have been allowed to include a warning not required and approved by the
 13 Navy. Any attempt to include a cautionary warning without prior Navy
 14 approval would have been prohibited as a violation of Military
 15 Specifications because the Navy addressed hazards such as asbestos through
 16 training, not through warnings.

17 10. I personally reviewed the Award Contract/Purchase Order and correspondence
 18 from Pittsburgh Corning to Mare Island nuclear procurement personnel (Exhibits 1 & 3). That
 19 purchase order clearly invokes the requirements of MIL-I-24244 (Exhibit 5), Type 1 and
 20 Amendment 1, plus the requirements of MIL-1-2871. MIL-I-24244 is titled "Insulation Material
 21 With Special Corrosion, Chloride and Fluoride Requirements (ISSE Controlled Further
 22 Dissemination Only As Directed By NAVSEA System C-9B2)." It is patent that MIL-I-24244
 23 specifies special corrosion, chloride and fluoride requirements above and beyond what is
 24 permitted under the specification and its associated QPL. (Exhibit 5, Bates pages 61312-61315.)
 25 MIL-I-24244 was highly classified until 2004.

26 11. MIL-I-24244 section 3.3.1 requires that "the specific material supplied" must be
 27 analyzed. (Exhibit 5, Bates page 61312.) MIL-I-24244 section 4.3.1 demonstrates that the Navy
 28 imposed pre-production testing of this material by each supplier. That section requires that the

“corrosion test shall be performed as a preproduction test by each supplier...It need not be repeated for subsequent orders from any source unless required by the ordering data.” (Exhibit 5, Bates page 61315.) Thus, the Pittsburgh Coming Unibestos then listed on QPL 2781 (Exhibit 2) could not qualify for sale to Mare Island under the procurement order cited. That procurement was designated for specific end-use on specific submarines in the nuclear areas. Pittsburgh Corning was required to subject its Unibestos to two additional chemical analysis tests in accordance with MIL-1-24244 (Ships), and verified by the local government inspector (DCAS) prior to shipping the Unibestos to Mare Island. The combined requirements of both specification assured that the insulation met the Navy’s requirements for use aboard the *USS Guitarro*, the *USS Drum*, the *USS Hawkbill*, and/or the *USS Pintado*. Even though the material being procured, such as this lot of thermal insulation, is compliant with both of the invoked specifications in every respect, either by prior or compliant testing and certification, the navy may require additional testing to ensure to its satisfaction the precise chemical makeup of that specific material lot. That is exactly what occurred in this subject procurement. That additional testing was originally performed by the manufacturer as witnessed by the DCAS inspectors, and confirmed by the specific lot testing by the Laboratory’s Receipt Inspection, Code M-136B on 3/9/69. Thus, it is obvious that the navy controlled the procurement of this lot of insulation in every respect.

12. The Navy’s requirement that Pittsburgh Coming certify the shipment of Unibestos in accordance with MIL-1-24244 indicates that, even before it left the Pittsburgh Corning factory, the Navy effectively controlled the manufacture of this production lot. In fact, the Navy played a key role in the original development of Unibestos in 1936 and 1937 as shown in Exhibits 8 and 9.

13. Those Exhibits are the Navy’s own test reports on samples of Unibestos insulation products provided to the Navy’s Engineering Experiment Station to gain Navy acceptance. In Exhibit 8, the Navy Lab reported preliminary test results of Super Unibestos pipe covering and block in response to tasking by the Navy’s Bureau of Engineering. (See paragraphs 1 and 2, Page 3). Source of material and test protocols are defined in Exhibit 8 on Pages 4 and 5 in paragraphs 3 and 8. The remainder of the report cites the findings and conclusions. The final report, Exhibit 9, provides official results of the tests, again citing authority for the conduct of the test,

1 and the conclusions. This evidence further demonstrates the Navy control over the development
 2 and ultimate approval for use of the Unibestos materials. It is important to note that these tests do
 3 not address the special requirements later invoked in MIL-I-24244, Exhibit 5.

4 14. In the nuclear age, Navy engineering authorities deemed it necessary to require
 5 further testing for application of the Unibestos to nuclear piping. That recognized need exceeded
 6 the requirements of previous testing and certification under MIL-1-2781. Thus, the imposition of
 7 MIL-I 24244 makes clear that the Navy invoked the new requirement for their direct oversight of
 8 the production of the Metalclad-brokered shipment of Pittsburgh Corning Unibestos; and that this
 9 specific lot of Unibestos was a government controlled product. The fact that MIL-1-24244 was
 10 restricted from public dissemination further indicates that the Navy had highly sensitive design
 11 interests in the *USS Guitarro*, the *USS Drum*, the *USS Hawkbill*, and the *USS Pintado*.

12 The purchase order (Exhibit 1) for the Unibestos insulation subject to MIL-1-24244 was
 13 intended for use on stressed austenitic stainless steel (Page 29 of Exhibit 1), and was therefore
 14 required to meet precise corrosion, chloride and fluoride specifications. On submarines, those
 15 concerns apply uniquely to nuclear piping, and that application is noted (Nuclear Target) on Page
 16 1 of the Purchase Order itself (Exhibit 1). That concern derives from the extremely adverse effect
 17 of chlorides on stainless steel in the form of chloride stress corrosion. Such corrosion severely
 18 degrades the strength of the piping, and introduces the probability of failure under stress. This is
 19 clearly above and beyond the requirements for stock Unibestos that could be purchased by the
 20 Navy pursuant to the QPL. The existence of MIL-1-24244 and its application to the shipment of
 21 Unibestos made by Metalclad demonstrates that other shipments of Unibestos insulation supplied
 22 pursuant to the QPL only, i.e., not subject to the additional specifications of MIL-1-24244, would
 23 not have been appropriate for use given the Navy's expressed additional requirements invoked for
 24 materials intended for nuclear system application in the *USS Guitarro*, the *USS Drum*, the *USS*
 25 *Hawkbill*, and the *USS Pintado*. Additionally, the Shipyard's own Chemical Laboratory
 26 performed receipt testing of materials to validate the vendor's certificates; further attesting to the
 27 sensitivity of the materials and the concern of the Navy that the materials be proper and suitable
 28 for nuclear applications.

1 Attempts to obtain certified copies of MIL-I-24244 from the National Archives (NARA)
2 have not been successful. A search by our contracted archivist of unclassified files at NARA did
3 not locate that specification. Since the specification was originally classified but since
4 declassified, it is likely that NARA records of it are still on file in one of the many storage boxes
5 containing classified materials. Thus, because of the original classification of MIL-I-24244, it
6 cannot be reasonably obtained from NARA. The copy I have relied upon and attached hereto as
7 Exhibit 5 was obtained from Newport News Shipbuilding records and was produced by Naval
8 Ship Engineering Center in Hyattsville, Maryland.

9 I declare under penalty of perjury that the foregoing is true and correct and that this
10 declaration was executed on this 18th day of November, 2009 at Norfolk, Virginia.

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13 DAN H. HEFLIN, JR.

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